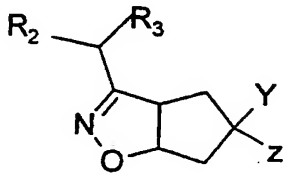
Claims:

What is claimed is:

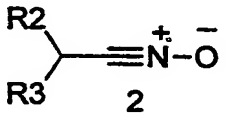
1. A method for preparing isoxazoline compounds represented by the formula 4:



4

wherein each of R_2 and R_3 individually is alkyl or alkenyl of 1-8 carbon atoms, cycloalkyl or substituted cycloalkyl of 4-8 carbon atoms, arylalkyl or substituted arylalkyl, or H provided at least one of R_2 and R_3 is other than H; each of Y and Z individually is $COOR_1$ or H provided that at least one of Y and Z is other than H;

which comprises reacting a nitrile oxide of the formula 2



2

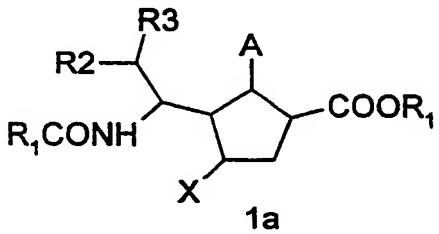
41

with a cyclopentane derivative of the formula 3

3

to produce said isoxazoline compound.

2. A method for preparing a substituted cyclopentane compound represented by formula 1a:



1a

wherein each R_1 individually is alkyl or substituted alkyl, alkenyl or substituted alkenyl of 1-6 carbon atoms, or H; each of R_2 and R_3 individually is alkyl or alkenyl of 1-8 carbon atoms, cycloalkyl or substituted cycloalkyl of 4-8 carbon atoms, aryl or substituted aryl, arylalkyl or substituted arylalkyl, or H provided at least one of R_2 and R_3 is other than H; X is NHR_1, $NHC(=NH)NHR_4$ where R_4 is H, alkyl of 1-6 carbon atoms, OR_1, COR_1, $COOR_1$ CN or NO_2; A is

H; and pharmaceutically acceptable salts thereof;

which comprises:

obtaining an isoxazoline compound of formula 4 according to the process of claim 1;

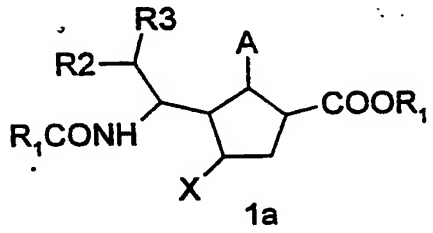
reducing said isoxazoline compound of formula 4 to form an aminoalcohol derivative according to formula 5;

reacting said aminoalcohol compound of formula 5 with an anhydride or acid halide of a carboxylic acid of the formula: R_1COOH to produce an acylated compound represented by formula 6;

converting the alcohol group of said acylated compound into a leaving group;

displacing said leaving group with ammonia or guanidine to obtain said compound of formula 1a; or displacing said leaving group with an azide ion and then converting to a guanidine with a NH_2 compound to obtain said compound of formula 1a.

3. A method for preparing a substituted cyclopentane compound represented by formula 1a:



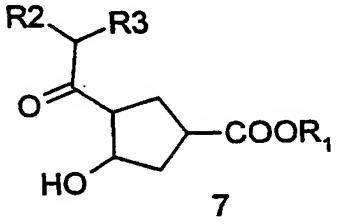
1a

wherein each R_1 individually is alkyl or substituted alkyl, alkenyl or substituted alkenyl of 1-6 carbon atoms, or H; each of R_2 and R_3 individually is alkyl or alkenyl of 1-8 carbon atoms, cycloalkyl or substituted cycloalkyl of 4-8 carbon atoms, aryl or substituted aryl, arylalkyl or substituted arylalkyl, or H provided at least one of R_2 and R_3 is other than H; X is NHR_1, $NHC(=NH)NHR_4$ where R_4 is H, alkyl of 1-6 carbon atoms, OR_1, COR_1, $COOR_1$ CN or NO_2; A is H; and pharmaceutically acceptable salts thereof;

which comprises:

obtaining an isoxazoline compound of formula 4 according to the process of claim 1;

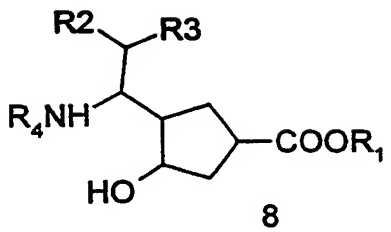
converting said isoxazoline compound of formula 4 to a ketone according to formula 7



7

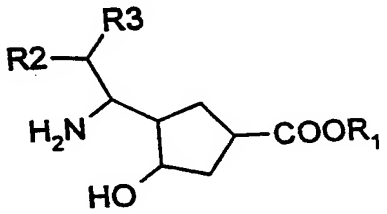
by opening its isoxazoline ring;

subjecting said ketone of formula 7 to reductive amination to thereby form a compound according to formula 8



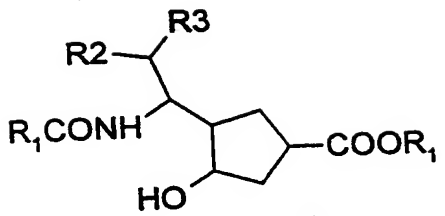
8

wherein R_4 is H or a substituted benzyl; when R_4 is a substituted benzyl, R_4 is removed to give the aminoalcohol compound of formula 5;



5

reacting said aminoalcohol compound of formula 5 with an anhydride or acid halide of a carboxylic acid of the formula R_1COOH to produce an acylated compound represented by formula 6;

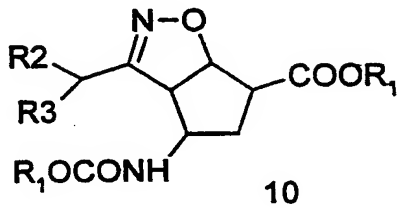


6

converting the alcohol group of said acylated compound into a leaving group;

displacing said leaving group with ammonia or guanidine to obtain said compound of formula 1a; or displacing said leaving group with an azide ion and then converting to a guanidine with a NH_2 compound to obtain said compound of formula 1a.

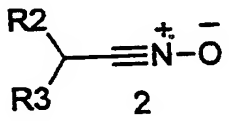
4. A method for preparing isoxazoline compounds represented by the formula 10:



10

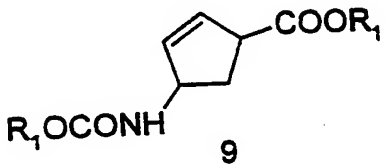
wherein each R_1 individually is alkyl or substituted alkyl, alkenyl or substituted alkenyl of 1-6 carbon atoms, or H; each of R_2 and R_3 individually is alkyl or alkenyl of 1-8 carbon atoms, cycloalkyl or substituted cycloalkyl of 4-8 carbon atoms, aryl or substituted aryl, arylalkyl or substituted arylalkyl, or H provided at least one of R_2 and R_3 is other than H;

which comprises reacting a nitrite oxide of formula 2



2

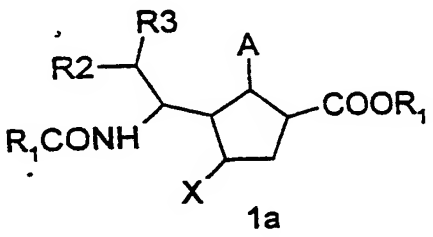
with a cyclopentane derivative ~~of the~~ having formula 9



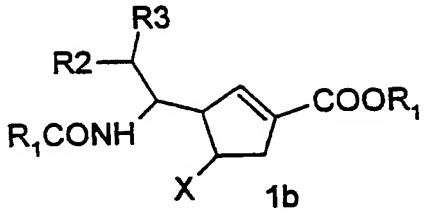
9

to produce said isoxazoline compound.

5. A method for preparing a substituted cyclopentane compound represented by formulae 1a or 1b



1a



1b

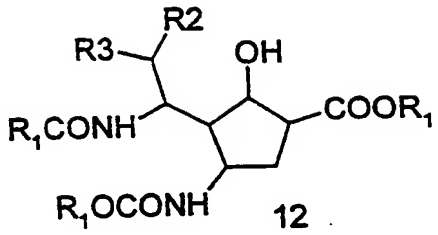
wherein each R_1 individually is alkyl or substituted alkyl, alkenyl or substituted alkenyl of 1-6 carbon atoms, or H; each of R_2 and R_3 individually is alkyl or alkenyl of 1-8 carbon atoms, cycloalkyl or substituted cycloalkyl of 4-8 carbon atoms, aryl or substituted aryl, arylalkyl or substituted arylalkyl, or H provided at least one of R_2 and R_3 is other than H; X is NHR_1, $NHC(=NH)NHR_4$ where R_4 is H, alkyl of 1-6 carbon atoms, OR_1, COR_1, $COOR_1$ CN or NO_2; A is H, F, OR_1, $OCOR_1$, $-OOCNHR_1$, NHR_1, or $NHCOOR_1$; and pharmaceutically acceptable salts thereof;

which comprises:

obtaining an isoxazoline compound of formula 10 according to claim 4;

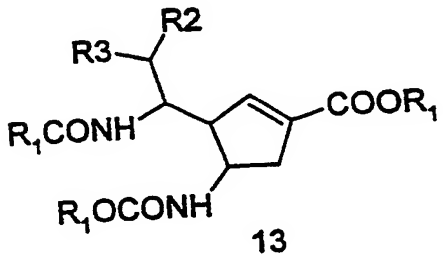
Improper dependent

converting said isoxazoline to a compound of formula 12



12

and dehydrating said compound of formula 12 to produce a compound of formula 13



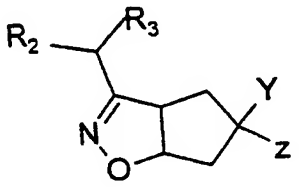
13

or converting the OH groups of said compound of formula 12

to a group selected from the group of F, OR, OCOR, NHR_1 or NHCOOR, except when said grop is OR_1, R_1 is other than H.

6. An isoxazoline derivative represented by the following formula 4:

Intermediate



4

wherein each of R_2 and R_3 individually is alkyl or alkenyl of 1-8 carbon atoms, cycloalkyl or substituted cycloalkyl of 4-8 carbon atoms, arylalkyl or substituted arylalkyl, or H provided at least one of R_2 and R_3 is other than H; each of Y and Z individually is $COOR_1$ or H provided that at least one of Y and Z is other than H.